



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Rajan et al.

Serial No.: 10/635,945

Filed: 8/7/2003

Title: MULTIPLE DESCRIPTION
CODING USING TRANSFORMS
AND DATA FUSION



Group Art Unit:

Examiner:

Attorney Docket No.: 3040-101

Assistant Commissioner for Patents
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

This Information Disclosure Statement is submitted:

☒ under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)

☐ under 37 CFR 1.97(c) together with either a:
☐ Certification under 37 CFR 1.97(e), or
☐ a \$240.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

☐ under 37 CFR 1.97(d) together with a:
☐ Certification under 37 CFR 1.97(e), and
☐ a petition under 37 CFR 1.97(d)(2)(ii), and
☐ a \$130.00 petition fee set forth in 37 CFR 1.17(i)(1).
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

☒ Applicant(s) submit herewith Form PTO 1449-Information Disclosure Citation together with copies, of publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The relevance of the attached references is that this is the closest art of which Applicant is aware. Applicant submits that the above references taken alone or in combination neither anticipate nor render obvious the present invention. Consideration of the foregoing in relation to this application is respectfully requested.

It is requested that the information disclosed herein be made of record in this application.

Respectfully submitted,

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date of Deposit: 12/30/03

Typed Name: Jessica Costa

Signature: Jessica Costa

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Please type a plus sign (+) inside this box

PTO/SB/08A (10-96)
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U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
		6,460,153		Chou et al.	10-01-2002	
		6,345,125		Goyal et al.	02-05-2002	
		6,330,370		Goyal et al.	12-11-2001	
		6,324,218		Jafarkhani et al.	11-27-2001	
		6,253,185		Areal et al.	06-26-2001	

FOREIGN PATENT DOCUMENTS								
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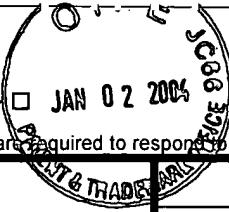
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Application Number	10/635,945
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Group Art Unit	
Examiner Name	
Attorney Docket Number	3040-101

Sheet 2 of 2

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		L. H. Ozarow, "On a Source-Coding Problem with Two Channels and Three Receivers", Bell System Technical Journal, 59(10):1909-1921 (1980)	
		M. W. Marcellin, T. R. Fischer, "Trellis coded Quantization of Memoryless and Gauss-Markov Sources", IEEE Transactions on Communications 38: 82-93 (1990)	
		Amir Said, William A. Pearlman, "A New Fast and Efficient Image Codec Based on Set Partitioning in Hierarchical Trees", IEEE Transactions on Circuits and Systems for Video Technology, 6:1-16 (June 1996)	
		J. C. Battlo and V. A. Vaishampayan, "Asymptotic Performance Of Multiple Description Transform Codes", IEEE Trans. Inform. Theory, vol. 43, no. 2, pp. 703-707 (Mar. 1997)	
		S. Lopresto, K. Ramchandran and M. Orchard, "Image Coding based on Mixture Modeling of Wavelet Coefficients and a Fast Estimation-Quantization Framework", Proceedings DCC, IEEE Data Compression Conference (Mar. 1997)	
		P. A. Chou, S. Mehrotra, and A. Wang, "Multiple Description Decoding Of Overcomplete Expansions Using Projections Onto Convex Sets" IEEE Data Compression Conference, Snowbird, UT, pp. 72-81, (Mar. 1999)	
		Rohit Puri, Kang-Won Lee, Kannan Ramchandran and Vaduvur Bharghavan. Application of FEC based Multiple Description Coding to Internet Video Streaming and Multicast. Proceedings of the Packet Video 2000 Workshop, Forte Village Resort, Sardinia, Italy (May 2000)	
		S. D. Servetto, K. Ramchandran, V. A. Vaishampayan, and K. Nahrstedt. "Multiple Description Wavelet Based Image Coding." IEEE Transactions on Image Processing, 9(5):813-826 (2000)	
		J. G. Apostolopoulos, "Reliable Video Communication over Lossy Packet Networks using Multiple StateEncoding and Path Diversity", Proc. Visual Communication and Image Processing, VCIP '01, pages 392--409 (Jan 2001)	
		V. K Goyal, "Multiple Description Coding: Compression Meets the Network" IEEE Signal Processing Mag., vol. 18, no. 5, pp. 74-93, Sept. 2001	
		V. K Goyal and J. Kovacevic, "Generalized Multiple Description Coding with Correlating Transforms," IEEE Trans. on Information Theory, vol. 47, no. 6, pp. 2199-2224, Sept. 2001	
		Goyal, Kovacvic and Kelner, "Quantization Frame Expansions with Erasures", Applied and Computational Harmonic Analysis, 10(3):202-233, May 2001	
		J.G. Apostolopoulos, S. Wee, D. Tan, G. Wornell, and T. Wong, "Multiple description Videwo Coding and Path Diersity and Streamng Media Content Delivery Networks", Hewlet-Packard Laboratories, Streaming Media Systems Group, Palo Alto, CA (May 2002)	
		Xin Zhong and Bijing-Hwang Juang, "Multiple Description Speech Coding with diversities," ICASSP 2002, Orlando, Florida May 13 - 17, 2002	
		J.G. Apostolopoulos, T. Wong, W. Tan, and S.J. Wee "On Multiple Description Streaming with Content Delivery Networks", IEEE INFOCOM (June 2002)	
		X. Zhong, J. Arrowood, A. Moreno, M. Clements, "Multiple Description Coding For Recognizing Voice Over IP", 10th IEEE DSP Workshop, Callway Garden, GA (2002)	

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